

## PROGRAM SUMMARY:

# SMALL ROOM

## DESCRIPTION:

**SMALL ROOM** is a reverberation program that effectively simulates the ambience of a moderately live small space. This stereo-in, stereo-out reverb provides exceptionally smooth reverberation characteristics without the metallic ringing exhibited by many reverbs at very short decay times. **SMALL ROOM** also displays superior retention of the stereo image throughout all combinations of its parameter settings. Parameters are included to control the decay time, room position, and room width and depth characteristics. In addition, a unique parameter allows the symmetry of the room to be skewed, simulating an irregularly shaped space. Controls are included to vary the echo diffusion and room brightness, and a mono/stereo input switch is provided. The program uses two sets of softkeys, one to enable/disable the input and the other to clear/resume the reverberation decay.

## PARAMETERS:

**DECAY TIME** Reverb decay time (RT60) can be varied from .1 second to 4.2 seconds in .1 second steps.

**FRONT/REAR** Allows adjustment of the relative position of the sound source, from front to rear of the simulated room in 45 steps. Front position gives a very dry but spacial ambience. Towards the rear the early reflections lose brightness and loudness and the late reflections and reverberance predominate.

**WIDTH EXPAND** A multiplier factor which can be used to increase or decrease the sense of width in the acoustical space, laterally expanding and contracting the reverberant image. Decreasing width can also enhance the illusion of greater distance from the sound source.

**DEPTH EXPAND** A multiplier factor which can be used to increase or decrease the sense of depth of the acoustic space behind the sound source. Greater depth values create stronger and more numerous late reflections from an increasingly distant rear wall.

**DIFFUSION** Adjusts the smoothness of the reverb decay, in ten steps. As the parameter value decreases, more discrete echoes are heard, as if the room's reflecting surfaces are becoming more regular and losing their diffusing properties. At a minimum setting the decay is quite ragged and unnatural, approaching a repeating echo effect.

**SYMMETRY** This parameter alters the symmetrical distribution of reflections and reverberance about the center axis of the room. Expressed as a percentage from 100% to 10%, the value may be thought of roughly as the ratio of the depth of the room's left side compared to its right side. At extremes, the effect is of proximity to a wall on the left with a very deep space extending off to the right.

**HI EQ BOOST** An extra brightness control. Higher boost factors can be used to put a hard edge on the reverberation, while lower factors yield a smoother sound, particularly at long decay times.

**STEREO/MONO** An input mode switch which causes the reverberator to receive a just a mono signal from channel 1 or a complete stereo image from both channels.

### SOFTKEYS:

**ENABLE/DISABLE INPUT** Switches the input to the reverberator on and off.

**CLEAR/RESUME REVERB** CLEAR instantly sets the decay time to the minimum, .1 second. RESUME restores the decay time to its previously adjusted value.

### APPLICATIONS:

This program excels at accurately placing panned or naturally stereo images into a wide array of small acoustic spaces. The original intent was to provide big drum sounds from tightly miked dry percussion tracks, without losing localization in the stereo image and turning it to mush the way most stereo reverbs do. Consequently, this program can help coax that big, ballsy, English heavy metal sound out of even the tinniest drum machine. Shorter DECAY values will work best when processing the complete drum kit (which we recommend), and increasing the DEPTH adds a hard slap from the back wall.

A short DECAY and medium-distance FRONT/REAR position also gives a closely miked guitar amp some very realistic 'room tone'. Narrowing the space with the WIDTH control can help keep the rest of the mix uncluttered. Using the SYMMETRY control can subtly shift the focus of the image in the stereo panorama without resorting to panning. The sense of asymmetry is enhanced greatly by adding some extra DEPTH - the right corner of the image will sink back into a deep space. (For a deeper *left* corner you'll have to exchange the outputs at the patch bay or console effects return.)

Lead vocal tracks normally need a somewhat longer DECAY time than rhythm tracks, and a more forward positioning. A taste of HI EQ BOOST can help. On the other hand, backing vocal tracks can be easily set back in the mix without losing overall level just by using FRONT/REAR to very effectively position them 'at the back of the room'.

In post-production film and video work, room ambience is easily imparted to looped dialogue tracks and sound effects using short DECAY times and a distant FRONT/REAR position. Adjusting the position can accurately simulate the effect of the speaker turning towards or away from the camera. The SYMMETRY parameter might also be used to help match the stereo ambience of the track to the shape of the interior as it appears on-screen.

## PROGRAM SUMMARY:

# INVERSE REVERB

## DESCRIPTION:

**INVERSE REVERB** is special effects program that provides a simple but effective simulation of an inverted reverberation effect, resembling a standard reverb decay playing backwards in time. Unlike many so-called reverse reverbs which are simply multi-tap delay effects, **INVERSE REVERB** is a mono-in, stereo-out program using a true reverberation algorithm driven by a carefully designed FIR filter structure. The resulting sound begins as a spacially diffuse image spread across the stereo field and decreases in echo density as it increases in proximity, ultimately coalescing into a centered, dry version of the original signal. A **LENGTH** parameter controls the length of the inverted decay, from 200 to 1000 milliseconds. An **INITIAL LEVEL** parameter allows the level at the beginning of the sound to be boosted, giving a reverberant attack instead of a smooth buildup. A **FINAL LEVEL** parameter provides a similar tailoring of the end of the sound, allowing it to be smoothed off or peaked up, reducing or enhancing the intelligibility of the original signal. A pair of softkeys are provided to bypass / resume the reverberation, yielding a straight delay line whose length is equivalent to the inverted decay time.

## PARAMETERS:

**LENGTH** Inverted decay length, from 200 to 1000 milliseconds (.2 to 1 second) in 20 millisecond increments. Analogous to the RT60 of a standard reverberator, though inverted in time.

**INITIAL LEVEL** This is an amplitude boost factor, from +0 to +30, that allows a reverberant attack to be added to the sound instead of just a gradual increase in level. In effect, it allows the original input signal to bleed into the reverb at the attack of the sound.

**FINAL LEVEL** This is an amplitude boost or cut factor, from +15 to -15. It allows the end of the sound either to be boosted, increasing the intelligibility of the original signal, or smoothed off, obscuring it in the final group of echoes.

## SOFTKEYS:

**DISABLE/ENABLE REVERB** Rather than merely alternating the effect signal with the 'dry' signal entering the unit, (which would introduce a discontinuity in the perceived dry sound), this softkey pair alternates the entire effect signal with the dry signal delayed by an amount equal to the adjusted decay length. Thus if the softkey is being used to switch the effect in and out of a track, the dry sound will appear to continue unaffected while just the reverberant 'prefix' to the sound is enabled and disabled.

## APPLICATIONS:

As a special effect, you obviously won't have call for a program like **INVERSE REVERB** every day. But when you've just got to have that monster voice or inside-out cavern effect. . .

Actually, you'll probably find more uses for this program than might be apparent on first consideration. One currently popular application is for drums - try a moderate LENGTH setting, using the default INITIAL and FINAL LEVELs, to put some zap into those tom-tom fills. You can boost the INITIAL LEVEL if necessary to keep the original on-time attack.

Lead instrument solos can also be given an exotic twist - that backwards lead guitar sound will harken back to the psychedelic sixties. Of course, a little goes a long way here! Legato playing works best to simulate a true backwards sound, and is enhanced by using the maximum decay LENGTH of 1000 ms.

On a slightly different tack, an interesting 'non-linear' type reverb effect can be produced by adjusting the INITIAL LEVEL to +30 and the FINAL LEVEL to -15. This might be useful just for thickening drum tracks, especially at the shorter LENGTH settings. At longer LENGTHS it can also coax an unnatural-sounding but rather intriguing stereo choir effect out of single vocal tracks. As with any program of this type, let your imagination (and hopefully your good taste!) guide you.

### first order effects

digital audio signal processing

206 west 106th st. suite 27  
new york, NY 10025

(212) 864-5491